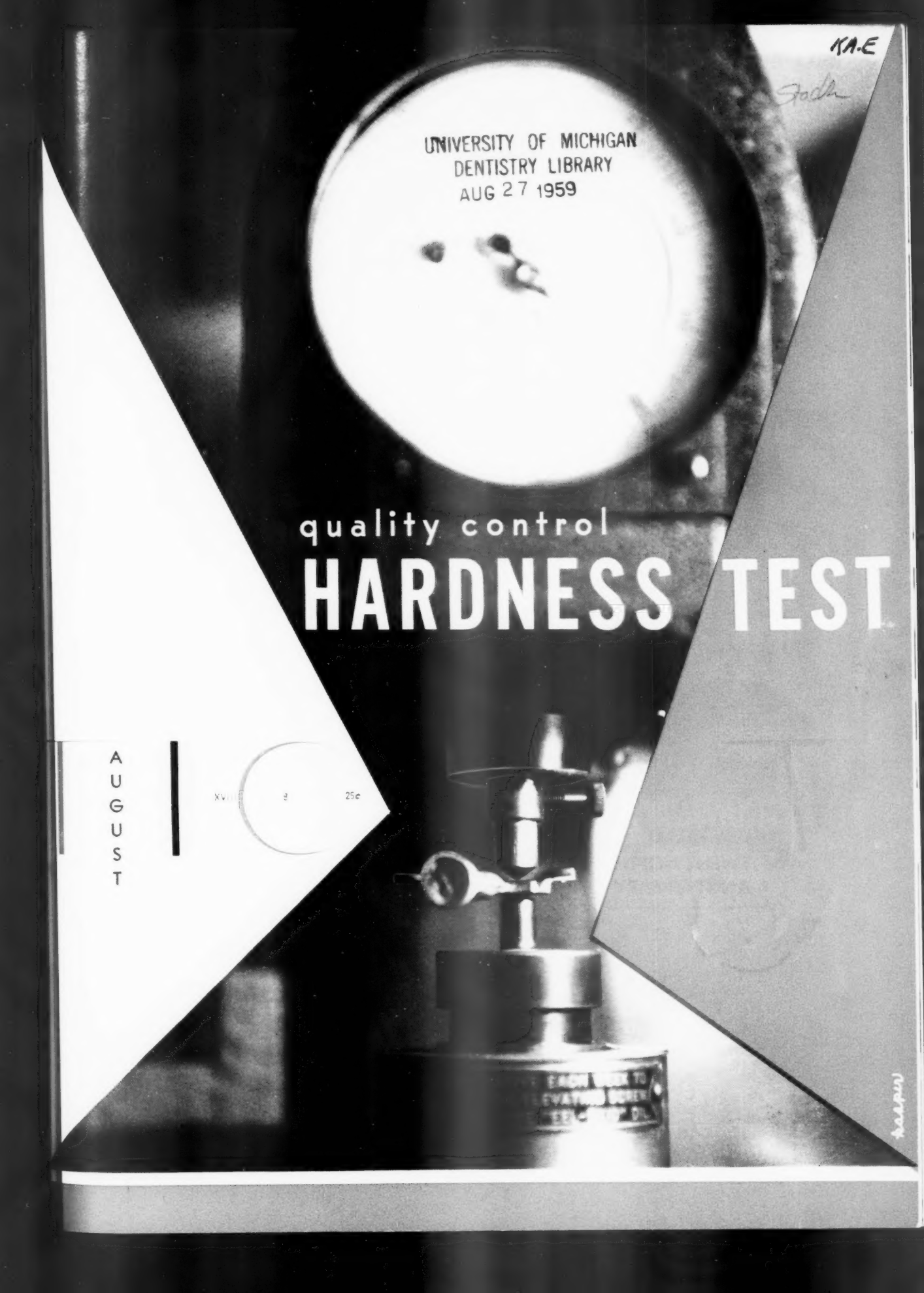
KA-E

UNIVERSITY OF MICHIGAN
DENTISTRY LIBRARY
AUG 27 1959

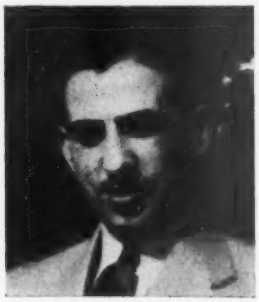
quality control

HARDNESS TEST



AUGUST

CHESTER COUNTY DENTAL LABORATORY
24 EAST MARKET STREET — WEST CHESTER, PENNSYLVANIA
Phone: OWen 6-3190



Anthony Rizzotte

TICONIUM
TWENTY-FIFTH ANNIVERSARY

HARDNESS TEST

6th IN A SERIES OF TIC COVERS ON

QUALITY CONTROL

Expert Ticonium metallurgists plus precision equipment, quality control each and every batch of Ticonium chrome-cobalt. The Rockwell Hardness tester (pictured on the front cover) is used to determine exact hardness. This is but one of many steps to insure your receiving dentistry's finest quality controlled chrome-cobalt — Ticonium.

At Ticonium, "Quality Control" is of paramount importance.

Research • Progress • Quality

YOUR TICONIUM LABORATORY

TIC

A MAGAZINE FOR
DENTISTS
DENTAL HYGIENISTS
DENTAL ASSISTANTS

Editor,
Joseph Strack

Contributing Editors,
Arthur H. Levine, D.D.S.
Joseph Murray, D.D.S.

Art Director,
Edward Kasper

August 1959 Vol. XVIII No. 8

CONTENTS

THE CHILD PATIENT
"This may be the opportunity to establish in the child a willingness to accept dental treatment, without emotional strain, which may last the rest of his life." 1

THE BILATERAL FREE-END SADDLE LOWER DENTURE
The third installment of an important series prepared exclusively for TIC'S readers. 5

DENTISTRY IN THE LIFE OF A SAC MAN
A photo-story of the high-standard dental care given to the crew members of our B-47 Stratojet bomber wings. 8

WHAT THE ADA MEANS TO YOU
How research put American dentistry on the road upward, and kept it progressing. 10

TWO MAKE A TEAM
A salute to the President of the National Association of Dental Auxiliaries and her dentist-husband. 15

SOON! INJECTIONS WITHOUT NEEDLES
"Your instrument supply dealer doesn't have it yet, but a device that will administer a subcutaneous or intramuscular injection without a needle is on the way to your office." 16

PUBLISHED MONTHLY BY TICONIUM
413 N. Pearl St., Albany 1, N. Y.

COPYRIGHT, 1959
TICONIUM DIVISION
CMP INDUSTRIES, INC.
ALBANY, NEW YORK

ANNUAL SUBSCRIPTION, $2.50

Opinions expressed by contributors to TIC magazine do not necessarily reflect the views of the publishers.

PRINTED IN THE U.S.A. BY
JERSEY PRINTING CO., BAYONNE, N. J.

THE CHILD PATIENT

By ARTHUR H. LEVINE, D.D.S.

When a child walks into a dental office for treatment, particularly on a first visit, the dentist should experience all the stimulation, anticipation, and challenge of the artist with a new canvas, or the writer with a fresh piece of paper. After all, this is no routine visit. This may be the opportunity to establish in the child a willingness to accept dental treatment, without emotional strain, which may last the rest of his life. This should quicken the pulse of every dentist faced with the responsibility.

Unfortunately this is not the case. Not all dentists like to treat children. In the extreme, some men absolutely refuse to have them in their practice. At the other end is the pedodontist who confines himself entirely to children. Between these extremes will be found most of the general practitioners of this country.

Parents today realize the importance of introducing the child to dental procedures at an early age. "When should I bring my child to the dentist?" is a common question. But very few dentists early in their career take the opportunity of learning about children. Although the deciduous dentition is studied as part of the dental curriculum, very little is done to enable the student to know what is going on in the mind of the child. This is to be regretted since rules for handling children can be set down almost as precisely as rules for casting a gold inlay.

One dentist, a recent graduate, confessed that children baffled him and usually left him exhausted. He readily admitted that treating them was the most difficult problem he had faced since he left school. Another dentist stated that he had to give up children or "become a nervous wreck."

Most complaints of dentists concerning children as patients run as follows: they are spoiled; they don't sit still; they wet the preparation right after it has been sterilized; they spit out cotton rolls; they don't like pain; they won't tolerate a matrix; they can't stand a saliva ejector. The list is endless. It all adds up to the fact that anything the child does that comes under the heading of resisting treatment is distasteful to the dentist. It is a frustrating feeling to be thwarted in the conscientious attempt to complete a piece of work.

This brings us face to face with the primary objective in treating

children. It is not the satisfactory completion of a piece of work. It is not the excavation of a cavity and its subsequent filling. It is not a cleaning. It is not the removal of a tooth. It is none of these. The primary objective in treating children is to instill in them a willingness to accept dental treatment without emotional strain. Simply stated, the dentist should try to prepare each child to become a good adult patient.

Once this premise is accepted everything falls into place. The dentist is performing a service; he is not selling a filling. In many cases, performing a service ends with a filling. But not always. For example, a mother brings her daughter for an examination. The child is four years old and this is her first experience with a dentist. The dentist examines the young patient and finds a few small cavities. He watches the child carefully as she tries to adjust to the new surroundings and to his instrumentation during the examination, and decides that it would be wise to put off any operative procedures until the second visit.

"THE THINGS I DO TO MAKE A LIVING!"

The dentist has certainly performed a service. In fact his decision to bring her along slowly may have an important bearing on her as a patient for the future. This is a valuable service. And it calls for a fee. Few parents would object. Most of them will appreciate what the dentist is trying to accomplish. When questioned on this score, one mother said, "I remember how scared I was when I was young. I would do anything to keep my child from going through that."

A Lesson For Everyone

Another case involved a boy of six who had been terrorized during his first experience in a dental office. The dentist found a deep-seated occlusal cavity in a deciduous second molar. After reprimanding the mother and pointing out the importance of keeping the deciduous second molar properly restored because of its value in keeping the permanent first molar from drifting forward, he began the preparation of the cavity. After a few minutes of drilling the pulp was exposed in a sudden, painful action of the drill. The child screamed, slipped out of the chair, and ran from the room holding his face with both hands.

The dentist admitted to a colleague later that he had allowed only enough time for an examination and, instead, was faced with a neglected cavity that required extensive preparation. He did not feel that he could send the patient away without doing something. The next best thing, he decided, was to clean out the decay as quickly as possible. But he asserted that the pulp had already been invaded and refused to carry any blame for the exposure.

In deep-seated cavities in deciduous teeth an exposure is frequently inevitable. Certainly the dentist cannot be blamed for that. But the experience made a six-year-old boy so fearful that he refused to go to a dentist. No threats or promises had any effect. He would rather be beaten, he told his mother.

After waiting two years, the mother decided that something had to be done. She finally found a dentist who had the reputation of being capable of handling children. In her consultation with him, she explained what had happened and readily admitted that she was partly to blame for not having brought the child to a dentist sooner. But now she was deeply worried. What should she do?

The dentist convinced the mother that at this stage it was more important to instill in the child an acceptance of dental treatment than to be concerned with filling individual teeth. But he warned that it would be a long slow road and would require patience and understanding of everyone involved. "I'll do anything," she said.

It was, indeed, a long road. Mother and son came once every week. It took four weeks (four visits) before he entered the waiting room. Even then he stood near the door, tense, ready to run. It took additional weeks before he relaxed enough to read the comics

on the table. Each step forward was slow.

To compress them all: he stood outside the operating room and watched another child in the chair; he sat in the chair, he sat in the chair and had his teeth examined; he had his teeth polished with a rubber cup; he felt the bur revolve slowly and lightly against his own finger; he had a small cavity prepared over a few visits. Now he goes to the dentist by himself.

This case ended successfully because the dentist was fully aware of his responsibility, which was the primary objective described before, namely, to prepare each child to become a good adult patient.

Children Want to Be Good Patients

Another basic premise that must be established in the mind of the dentist before he can treat children successfully is the fact that every child wants to be a good patient. This is difficult for some men to accept, but it is, nevertheless, psychologically sound. Equally sound is the belief that every child wants to do well in school. Judging from some of the problems that arise in school, it is easy to understand why some parents might question that statement. The fact still remains that most children want to achieve in school and most children are eager to be good patients.

Two questions arise: (1) Why are some children bad patients? (2) How should they be handled? The answer to the first is fear. This is fear in its broadest sense. Anxiety would be a better term. Somewhere along the road the child has had some experience which has created an anxiety in his mind concerning dental treatment. The experience may have been one of many and could be difficult to trace. It may be real or imaginary. Whatever the reason, when the fearful child walks into the dental office he is going to be concerned. And the depth of his concern will govern his ability to be a good patient.

Once the dentist is convinced that the child who resists treatment is fearful, his attitude toward the child should be one of understanding and sympathy. If the child could be mature enough to say, "Doctor, I'm awfully scared and my pulse is going a mile a minute!" the dentist's heart would melt. And he would go out of his way to help the child. But few children are quite that articulate in the early years. The result is that he tries to hide his fear and protect himself against it at the same time. The resulting behavior can take many forms, all of which are frustrating to the dentist.

A Dentist's Own Story

A dentist, himself, reports the following incident which took place when he was a child. He overheard his mother say that she was going to take him to the dentist that very afternoon. The fact that the dentist was his uncle did not mitigate his fear. In a panic to put off the visit to his uncle, he suddenly pretended that his leg hurt. He said he could not walk on it. Little did he realize that his complaint, coming in the midst of the country's worst polio epidemic, alarmed his mother. She rushed him to the physician, who examined him carefully and found nothing wrong. But by that time the opportunity to go to the dentist had passed.

Relieve the Child's Anxiety

The answer to the second question, How should these children be handled?, is this: the dentist should direct all his efforts to relieving the anxiety. These efforts may take many forms. This objective may call for many appointments just to familiarize the child with the surroundings. It may require lengthy explanations of each instrument. It may necessitate the presence of the mother in the operating room, since she is the child's strongest link with security. Whatever it may require (each dentist will have to decide for himself), there is no doubt that sympathy and understanding are the basic ingredients.

One dentist complained that he had tried the magic formula of sympathy and understanding, but achieved no success. In fact, he thought the whole idea was nonsense. When questioned about his method of showing sympathy he said, "Don't worry. I used all the right words." Then when he was asked if he really felt sympathetic he bellowed, "No, but the child didn't know."

Children in this situation are extremely sensitive to every inflection or intonation. If the dentist is just going through the motions and does not really believe in what he is saying or doing, children will probably detect it. The dentist must believe that the difficult child patient is fearful and needs help. It may help the dentist to imagine that the patient is his own child. In many instances this might help create the proper approach. Or it might be enlightening for the dentist to consult with persons professionally trained to determine what is going on in the mind of the child who resists dental treatment.

Very few accomplishments in dental practice are as satisfying as winning over the child who once refused to walk into the reception room. It is a source of deep satisfaction to see that child come into the office and accept dental treatment willingly. And when he leaves the office with a bouncy step and a "thank you," the sun is shining.

8 Beacon Hill Road
Port Washington, N. Y.

FOR DENTISTRY ONLY

Photos and text by Henry F. Unger

The Dental Arts Building in Phoenix, Arizona, is the largest of its kind in the Southwest. It has space for twenty-eight dentists and associated professional personnel.

The attractive building was designed from ideas suggested by the leasing dentists. Space for individual dental offices and waiting-rooms ranges from 500 to 1,000 feet. Each office has individual cooling and heating units to accommodate the needs of each dentist. The two-story structure has a sub-basement and a parking area at the rear and side for eighty-seven cars.

The building has a pleasant interior court, and outside balconies serve as hallways for the suites on the second floor. Patients can enter from the rear and front of the building into the interior court and use steps at each end. Entrance to the dental offices is directly from the hallways, eliminating any confusion and unnecessary noise.

Architect for the building was Charles Polachek of Phoenix.

THE BILATERAL FREE-END SADDLE LOWER DENTURE

PART 3: JOSEPH MURRAY, D.D.S.

Since distal extension appliances pose the greatest problem in partial denture construction, saddle design assumes enormous significance. In addition, where precision attachment restorations are involved, the maximum denture-bearing area should be utilized, and the denture borders should be of sufficient thickness and well rounded, says Doctor Alexander Leff.

Although cognizant of the fact that there is considerable difference of opinion regarding the most effective method for making the impressions of the saddle areas, Doctor Leff is of the opinion that the denture saddle should be a faithful reproduction of the maximum denture-bearing area, taken with the tissues in their passive state.

He declares that one school of thought believes the tissues should be recorded in their functional form and the impression made under occlusal stress (Doctors Applegate, McCracken, and Hall).

The opposing school, (Doctors Leff, Hindels, and DeVan) stresses the registration of tissues in their passive or anatomic shape. This is known as the mucostatic type of impression.

In his case against the functional method of securing saddle-area recordings, Doctor Leff poses the following questions:

Do the impression material used and the amount of pressure applied achieve the desired functional distortion of the tissues?

Is it advisable to reproduce this "functionally" distorted tissue surface on the denture base in the hope that the tissues will distort in exactly the same fashion under varying functional conditions?

Assuming that there is a difference in tissue form between the functional and anatomic (rest) states, is there any trauma produced by the initial impingement of a "functionally" surfaced denture saddle against the tissues at rest?

This popular clinician feels there is reason to believe that when intimate apposition exists between the tissue surface at rest and the denture base, no change occurs in this position even under functional stress, since the denture base tends to inhibit tissue distortion.

Doctor Leff lays emphasis on the exact relationship of the saddle to the abutments, both at rest and during occlusal stress, and the necessity for establishing this relationship accurately. Because the functional position occurs during the stress of mastication, it is important to establish this record in relation to the abutment teeth in order to avoid unfavorable torsional effects. The resiliency of the tissues returns the denture saddle to the rest position.

During this movement there is no injury to the abutment teeth since the rotational force involved is comparatively small and in a more favorable mesial direction. By slightly elevating the male attachment in its receptacle, Doctor Leff allows for accomodation of this vertical play.

Procedure Described

In brief, an accurate relation of the saddles to the abutments can be obtained by making an impression of the saddle areas at rest in an individual shimmed tray; then, by exerting positive functional stress on this tray while a second impression records the relationship of the abutment teeth to the first impression and to each other.

Doctor Leff describes the clinical procedure this way: A rigid metal or acrylic tray which encompasses the denture-bearing areas and has an outline similar to that of the finished appliance, is constructed.

This tray is made with a suitable relief from the tissues in order to allow for a mucostatic-type impression to be made with a free-flowing impression paste. The impression of the soft tissues is removed from the mouth when set, inspected, trimmed, and tested for stability.

The second one is a stock impression tray which has openings cut into it to allow the operator's fingers to be placed over the saddle areas of the first tray.

With the mucostatic impression in place in the mouth, the second tray is used to take a plaster impression of the entire lower (or upper) jaw. The practitioner places his fingers through the aforementioned tray openings and exerts positive seating pressure against the first tray until the plaster is fully set. Gauze or tin foil can be used to prevent spilling of the plaster through the tray openings.

To facilitate the application of finger pressure through the perforations, the first tray is constructed with ridges or knobs opposite these openings.

This impression method tends to eliminate the

use of stress-breakers and helps maintain a stable result. However, in the last analysis, the dentist must consider each case carefully and study the biomechanics involved before arriving at a conclusion, cautions Doctor Leff.

Doctor Hindels' Concepts

Another proponent of the mucostatic principle and the dual impression technique for the free-end saddle partial denture, is Doctor G. W. Hindels. He claims that the functional ridge form, unlike the anatomic, is not a definite, consistently recurring contour of the ridge. It varies according to the degree and direction of stress placed on it, as delivered by the type and consistency of impression material used.

He points out that the mucosa always tries to return to its normal anatomic and physiologic state and introduces dislocating forces under the saddle. The result is a decrease in the latter's stability and accelerated tissue resorption due to traumatic and improperly distributed stresses, caused by the inability of the mucosa to maintain its anatomic form during function.

He believes that the one-piece colloidal or plaster impression will produce a cast which cannot possibly represent a functional relationship between the various supporting structures of the mouth.

Without the dual technique, when the partial denture is in position, the occlusal rest will fit its seat in the abutment tooth while the denture base will fit the surface of the mucosa at rest.

Should a masticatory load be applied to the extension saddle, the rest will act as a definite stop, preventing the part of the saddle near the abutment tooth from transmitting the load to the underlying anatomic structures. The distal end of the saddle, being able to move freely, will transmit the full masticatory load unevenly to the mucosa, resulting in trauma to the underlying tissue and bone.

Like Doctor Leff, Doctor Hindels states that to assure proper load distribution, the tissue surface of the saddle should be a negative reproduction of the anatomic undistorted surface of the alveolar mucosa. Moreover, the masticatory load should be distributed between the ridge and the abutment teeth during function and cannot be carried solely by the alveolar ridge.

Since the tissue surface of the saddle reflects the undistorted anatomy of the mucosa at rest, the amount of tissue displacement under a masticatory load will be minimal.

On release of masticatory stress, the saddle will move occlusally with the rebounding tissues and the occlusal rest will lift slightly off the floor of its seat on the abutment tooth.

If a masticatory load is again applied, the saddle will be able to move evenly tissue-ward, without interference from the occlusal rest, until the mucosa is fully displaced and the alveolar bone in its entirety carries the load. Meanwhile, the rest will contact the floor of its seat, and the tooth will take up some of the stress.

Doctor Hindels feels that the clasp arm should be so designed and adjusted as to allow for this vertical movement, and that tightly gripping clasps should be avoided.

His technique, somewhat similar to Doctor Leff's, employs a processed acrylic tray, selectively relieved. Excess material flowing on to the abutment teeth is removed, the impression is replaced on its original site, and an alginate impression made of teeth and tray.

For many years, Doctor O. C. Applegate has recommended the following qualities for a free-end saddle impression technique:

1. The material should record the resilient tissues in their supporting form.
2. The total area covered by the impression should be as great as possible to distribute the load over as large an area as can be tolerated by the patient.

Accordingly, he has advocated the use of waxes that are moldable at mouth temperature, because they are the only impression materials available that have the combined advantages of controlled displacement of fluid tissues and correctability under functional loading.

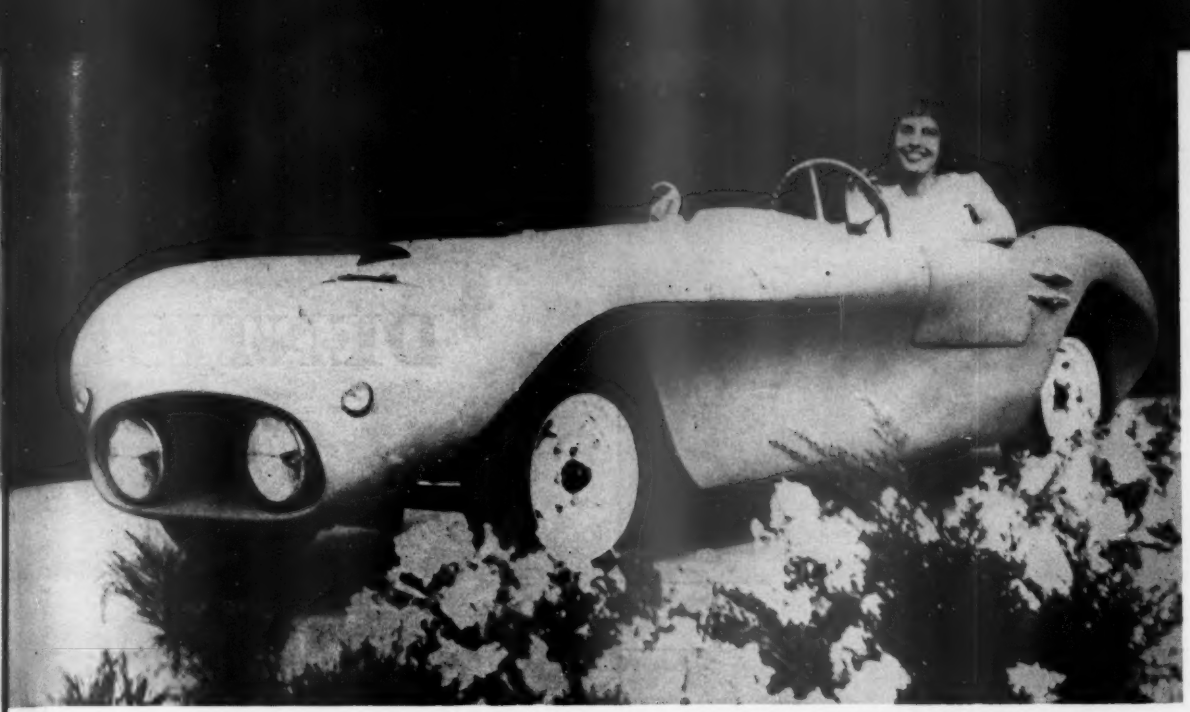
Doctor W. L. McCracken makes the following claims for the free-end base recorded in it functional form:

1. It is less irregular, and has a wider area coverage than a base processed to the anatomic form (tissues at rest).
2. It exhibits greater stability under rotating forces.
3. It maintains the occlusion at a point of equilibrium over a long period of time, in contrast to the anatomic-form base, which tends to settle, losing its occlusal relation with the opposing teeth.

But, before taking the final impressions for partial denture construction, the dentist should ask himself: Have I placed the proper emphasis on the preliminary preparation of the mouth? So admonishes Doctor J. S. McKenzie.

For, be it rubber-base, colloidal materials, alginates, plaster, modeling compound, fluid wax, zinc oxide and eugenol, or any special technique used to record the teeth and denture-bearing areas, nothing can supplant the application of common sense and sound principles of design to preserve the remaining teeth, ridges, and bony structures.

PART 4—NEXT MONTH



This is Bambino, the 185-pound, class H sportscar put together from scratch by Doctor L. Glen Carlson in a year's time. Budget, just over $500. At the wheel is Linda Munson, a friend of the Carlson family.

DENTIST AND SPORTSCAR BUILDER

By RICHARD A. JURCHEN

Relaxation from a crowded appointment schedule has been found by an Idaho dentist in conjuring the howl of powerful racing engines, the smell of burned rubber, the excitement of thousands of spectators at dusty, speedy Indianapolis or Le Mans race tracks.

Doctor L. Glen Carlson of Lewiston tried to capture this atmosphere in his sparetime by building a genuine Class-H sportscar.

In about a year's time he put together a streamlined "hot-shot," as he defines a sportscar, which is "capable of winning a sportscar race." His original budget was set at $500, which he surpassed only slightly.

To every man who builds a car there are 5,000 who have the desire but not the nerve, Doctor Carlson says, because a real sportscar is a far cry from a hotrod, a stripped-down stock car, or a chrome-laden miniature car. He explains:

"It has to meet specifications that require a deluge of computations to achieve the utmost possible in the horsepower-weight ratio, steering column lengths, wheel positions, points of gravity and other intricate problems."

It all started a year ago when he bought an old Crosley stationwagon. "Those little motors," he said, "can deliver one horsepower per cubic inch of displacement at an astoundingly low weight." So the stationwagon began its conversion. It all ended with Bambino—"little boy"—that weighs only 850 pounds, handles with amazing cornering ability and wonderful response, and, due to the remarkable weight-horsepower ratio, could stand a chance in a race with cars of similar power in the H class.

"Once in a while," Doctor Carlson explains, "my dental background helped in so far as I need a certain amount of mechanical thinking in my profession." When the problems of transmission, motor and frame had been licked, he decided upon a partially prefabricated fiberglass body for the car—the most costly item in the process—of Italian design. He modified it to fit his particular car.

Doctor Carlson added the finishing touches with seat covers of deerskin and a Grand Prix regulation leather strap to keep the hood down.

Mrs. Carlson had only one complaint during the construction period: the "workshop," the patio, was not available for her tea parties and messed up the garden. But it was fun for all, including their nine-year-old daughter and eleven-year-old son, who had only admiration for their ambitious father.

1517 Burrell Avenue
Lewiston, Idaho

The casting room sets the scene for duplication of the master cast. S/Sgt Richard E. Mendenhall readies the duplicating machine.

Dental extractions, tumors, and disorders such as fractured jaws are treated by Captain Martin Rosencrans, at right. His assistant is A/2C Terry Trentham.

Last-minute examination of the finished product is done by Major James L. Wyatt, Jr., and T/Sat. Ed Shanahan.

DENTISTR T

OF A M

PHOTOS AND TENTICA

Men in flight suits which bear the insignia of the Strategic Air Command wait quietly in a dental clinic reception center. The walls of the waiting room are lined with flight jackets instead of sport coats, for these patients are not bankers, automobile salesmen or stockbrokers, but crew members in SAC's B-47 Stratojet bomber wings who are using Air Force dental facilities between flights or alert duty.

Time is an important factor in the life of a SAC man. Realizing his need to keep physically fit to achieve peak proficiency in his job, a crew member must often schedule visits to the dentist just before takeoff or just after landing on training missions.

Such is the case at March Air Force Base, a SAC base near Riverside, California, which is the largest Air Force installation in Southern California and one of the oldest in the country. It was activated in 1918 and has grown into a modern military city with two Stratojet bomber wings and the headquarters of Fifteenth Air Force.

Besides having two dental clinics to serve base personnel and crew members of the bomber wings, the base is the home of an authorized chrome-cobalt laboratory, one of very few in the United States.

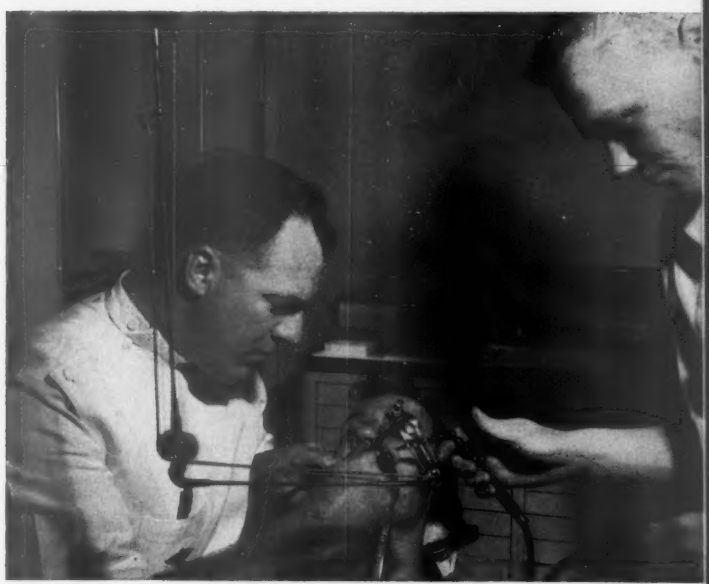
The March unit is equipped to fabricate any den-

R THE LIFE

A MAN

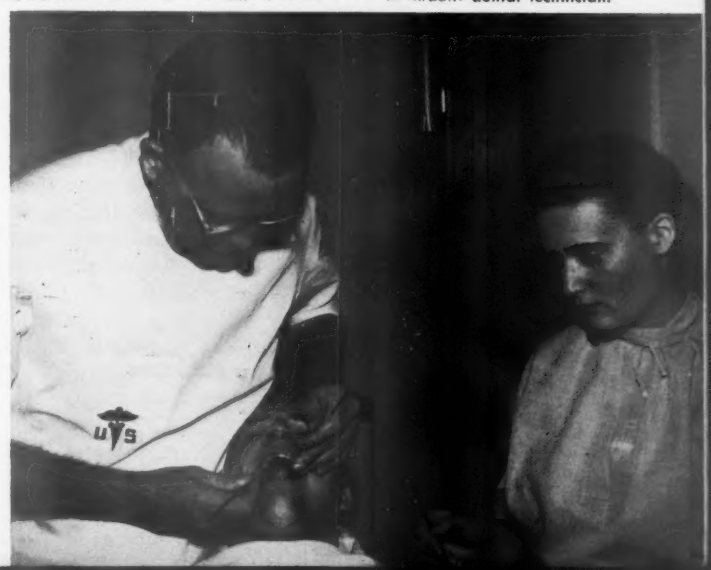
AND TENTICATED NEWS

Captain Harold C. Brest taking an upper impression at the dental clinic.



Captain Harold E. Schutt, left, and his assistant, A/3C Mark H. Boyd, treating a patient.

Major James A. Ambrose, left, periodontal disease specialist. His assistant is A/3C Lillian Derjots. The patient is A/3C Ivan Gordon, dental technician.



tal restoration from a single tooth gold crown to complete dentures, and it provides service for all Air Force bases within a 200-mile radius. These include Vandenberg, the new mushrooming California missile base; Edwards, a test missile base; and George, a jet fighter base. Other smaller bases served are Long Beach, Nellis, Norton, Oxnard and Inglewood.

These bases send artificial stone casts of the patient's mouth to the March lab, where technicians cast partial denture framework from the chrome-cobalt alloy, a type of stainless steel which has most of the desirable characteristics of gold and is much less expensive. The metal framework is completed here and then returned to the satellite bases. Although as many as 150 cases are handled in one month, complete fabrication of a denture case can be accomplished in about ten days.

March is also fortunate in having a program for treatment of periodontal diseases, such as pyorrhea. Periodontal specialists at the base explain that the emphasis in the Air Force is now on the preventive aspect of dentistry and not on repair work.

The March AFB dental program exemplifies the Air Force's constant concern to keep its men in top physical condition for performing their vital tasks while safeguarding our country.

AT YOUR SERVICE:

WHAT THE ADA MEANS TO YOU

PART 7: BY JOSEPH GEORGE STRACK

Doctor Hamilton B. G. Robinson, the distinguished dental leader and educator, said recently: "Instruments, materials and methods that have been devised in the past 50 years are numerous and they could be tabulated to record landmarks: the x-ray machine, the casting machine, intermaxillary wiring, procaine, resins, hydrocolloids, histochemistry, the electron microscope, balanced alloys, extra-skeletal splints, diamond stones, salivary lactobacillus counts, silver points, cephalometric measurements, fluorides, electrosurgical knives, airblast and radioactive isotopes." [1]

Few dentists know how indebted they are to their American Dental Association for helping to create and perpetuate the climate in which all this scientific progress has been made; for helping to bring about the scientific levels of dentistry at which they practice today; for helping to create the professional security they experience in using modern dental materials and equipment; and for encouraging the constant improvement in dental technics, procedures, and resources that have characterized the growth of the profession in the last few decades.

Research – painstaking investigation, precision evaluation, patient trial-and-error efforts—made all these accomplishments, and others, possible.

Ever since its formation a century ago, the ADA has preached the gospel of research, and pushed scientific investigation by individual dentists, by dental schools, by government, by manufacturers—by all who could conceivably contribute to the know-how of a health discipline that had to grow up fast if it was to meet the demands to be made upon it by a fast-growing, health-hungry population.

Dental research really got off the ground in the last quarter-century, however. According to one writer, in 1938 all thirty-eight dental schools had research programs under way. Today all dental societies are lending their support to every type of original study.

It all started with the National Dental Association, predecessor of the ADA, the first dental society in the United States to give financial support for research programs. In 1908 the Association organized a committee on scientific research. Five years later the Research Commission was established. The following year the Research Institute was opened in Cleveland, Ohio. Four years of experience indicated that dentistry would profit most and quickest from a program of grants-in-aid to dental schools and private laboratories, and the Association set up fellowships for the training of research personnel.

The wisdom of that decision has been confirmed a thousand times since.

Along with the ADA, the International Association for Dental Research, founded in 1920, has provided indispensable, fruitful stimulation of dental research— "the greatest stimulation and interest," Doctor J. Roy Blayney says.[2] And during 1940-1947 the American College of Dentists supported research through grants-in-aid, until the government assumed responsibilities in this field.

In 1946, the U. S. Public Health Service, so often identified with great social concepts and pioneering implementation of those concepts in the health field, authorized its first research grants-in-aid to agencies outside the Federal Government. Intramural dental research in the U. S. Public Health Service began in 1931.

The Army conducted dental research intermittently from the 1920's but after World War II both the Army and the Navy began actively to promote dental research.

In 1948 the Veterans Administration entered the research field.

But let us go back to 1947. Doctor James M. Dunning says this about it: "The year 1947 perhaps marks the turning point, for then it was that the

[1] "Advances in Dental Science," *The Journal of the American Dental Association*, 40:648 (June) 1950.

[2] "Advances in Research," *The Journal of the American Dental Association*, 40:650 (June) 1950.

Navy first asked the National Research Council for advice on military dental standards. This led to the formation of the Dental Advisory Committee of the National Research Council . . . With this new approach to dental research on the part of government agencies came large financial expansion and intellectual expansion. In reaching beyond the immediate problems of their own Services and utilizing civilian facilities all over the country, they opened the way for basic research in the dental field."[3]

Two Great Researchers

Doctor Dunning then goes on to refer to two of the modern-day greats in dental research, two men to whom dentistry owes much, as do the American people, whose oral health has been immeasurably improved, actually and potentially, because of their selfless efforts:

"Intramural research on a smaller scale among government agencies is, of course, much older. The first project to attract national attention was the venture of the National Bureau of Standards into the field of the testing of dental materials. This work started in 1919 and was not supported by the American Dental Association until almost ten years later. Pioneered by George C. Paffenbarger, it has standardized dental operating methods as well as dental supplies throughout the country and was one of the major advances in the field of clinical dentistry during the 1920's.

"The next important government research project to attract attention was the epidemiologic work of H. Trendley Dean, of the U. S. Public Health Service, on dental fluorosis and the influence of waterborne fluorine upon dental caries. Epidemiologists all over the country know of this work and are proud of it. It has led to the experimental fluoridization of water supplies now being carried on in many cities and to the topical application of fluoride to the teeth, now a major subject for study and demonstration by the U.S. Public Health Service." [4]

One section of the Board Room at American Dental Association headquarters.

Doctor Paffenbarger has been doing his brilliant pioneering work as a senior research associate of the Research Division of the American Dental Association at the National Bureau of Standards in Washington, D. C. The work at the Bureau is one of two programs maintained by the ADA's indefatigable Council on Dental Research. To mention but one achievement, the hydraulic-turbine contrangle handpiece is a product of the cooperative research of the ADA and the National Bureau of Standards.

A word about the Council, whose activities are all-important to the American dentist who wants to practice the best possible dentistry today, and a still better kind tomorrow.

The Council has an awesome obligation in that it is responsible, on behalf of [illegible] dentists, for [illegible] scientific growth and fulfillment of dentistry through research. It is charged not only with the task of promoting such research, but also with the job of directing the Association's constantly growing programs of testing and investigating.

The Council's Job

The Council's responsibilities fall into these four categories:

1. To encourage the training of additional research personnel in dental fields.

2. To maintain an inventory of current dental research projects in schools, dental research centers, public and private agencies and other groups, and to emphasize areas where more research activity is needed.

3. To notify schools, agencies, and individuals of the availability of public and private funds for dental research grants, fellowships, and training grants.

4. To stimulate interest in and out of the dental profession in problems related to dental research.

Two Research Programs

It was back in 1916 that the Association started all this. It now maintains two programs, the one at the National Bureau of Standards and the other at the National Institute of Dental Research in Bethesda, Maryland. The Institute was created by Congress in 1948, after years of urging by the Association. It is a part of the National Institutes of Health. The

[3] "Government in Dental Research," *The Journal of the American Dental Association*, 40:649 (June) 1950.
[4] *ibid.*

two research projects of the ADA are staffed by thirteen full-time workers, who are employees of the Association.

The research program at the National Bureau emphasizes physical and chemical research, while the activities at the National Institute are focused upon the biological sciences.

Association researchers at the Bureau have responsibility for the standard-setting *List of Certified Dental Materials,* which is published by *The Journal of American Dental Association.*

The fellowship also prepares other invaluable material for *The Journal,* including analytical comments on misleading claims made in advertising for dental materials.

At present the program includes basic research on the physical and chemical properties of enamel and dentin, and in the development and testing of such materials as alloys, acrylic resins, and cements.

The research division at the National Institute of Dental Research is mainly concerned with basic research in microbiology, biochemistry, and enzymology pertaining to dental caries and periodontal diseases.

The scope, nature, and importance of the work of the Council are indicated in its publications, some of which are:

American Dental Association Specifications for Dental Materials
Clinical Testing of Dental Caries Preventives
Annual Review of Dental Research
The Registry of Dental and Oral Pathology—a history
The Council on Dental Research of the American Dental Association—a history

The ADA research program at the National Bureau of Standards will be covered in another article in October Tic. Next month the article will be concerned with science fairs and what they mean to dentistry.

NEXT MONTH—PART 8

The first dental hospital and school in South Africa was established by the University of Witwatersrand, Johannesburg. Until its establishment, no facilities for the training of dentists existed in the country. Today one-third of the members of the dental profession in South Africa are graduates of the University. Here a group of young men are seen at work on "phantom heads." *(Authenticated News photos)*

A CENTURY OF PROGRESS: DENTAL EQUIPMENT

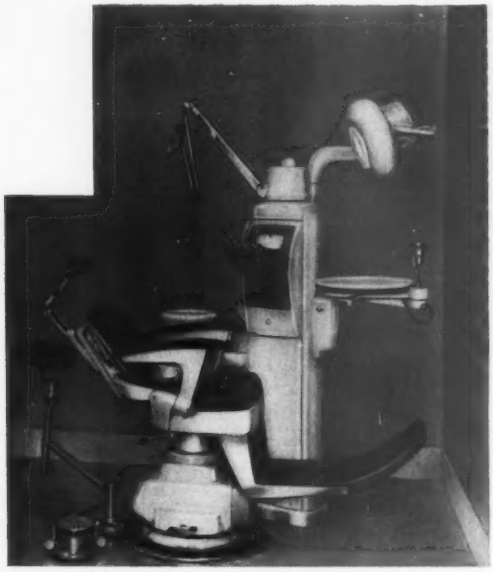
By CURT PROSKAUER, D.M.D.

PART 8

In earlier centuries, dentists laid out their few instruments on an ordinary household table. Later, a small table was set beside the patient's chair. At first these tables were not movable and sometimes they got in the dentist's way.

In 1876, James B. Morrison, inventor of the dental foot engine (1871), constructed the very serviceable "dental bracket," a table of great flexibility. A metal frame, screwed to the wall, swings from side to side like a gate on its hinges. Light but strong metallic arms, hinged to this central frame, can be moved up or down and firmly thumb-screwed to any desired height. At the end of each arm is a slide-rest through which a hollow rod passes freely; this can be clamped at any distance from the tip. At one end of the rod, the square instrument table with its instrument

Mattheus van Hellamont. The Dentist (about 1670). After Teniers' painting in The Dresden Gallery. Gallery Augsburg.

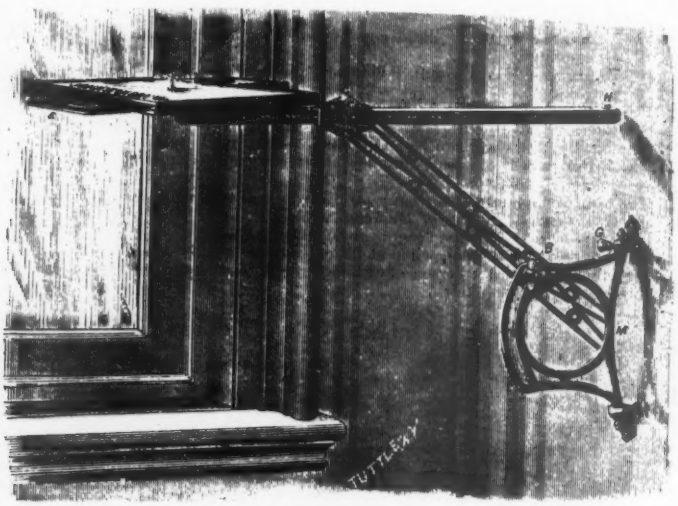


Courtesy, Ritter Company, Rochester, N. Y.

drawers is supported. The table is capable of rotation around its center, which is the burner of a spirit lamp. The drawers extend all the way through the table, so that they can be opened from either side. This adjustable apparatus could follow the chair to its lowest or highest position. It sold, with various table arrangements, at $25 to $40.

The modern instrument table is attached to the dental unit, so that it is independent of the wall. It can be very easily moved, and is therefore much more convenient.

720 Washington Ave.
New York 40, N. Y.



Morrison dental bracket.

TWO MAKE A TEAM

By KAY LIPKE

When the American Dental Association holds its annual convention in New York next month, Doctor and Mrs. Don J. FitzGerald of Mason City, Iowa, will attend.

This certainly isn't news, for the FitzGeralds have been going to dental conventions nearly every year since their marriage in 1930. They are both genuinely interested in dentistry, not only on the local and state level, but on the national level as well. Furthermore, they think it is fun.

However, this is a special year for Mrs. FitzGerald (Bonnie), for she is the President of the National Association of Dental Auxiliaries, and will preside at the auxiliary meetings at the Savoy Hilton Hotel, which will be headquarters for the women.

In a sense, this is a special year for all members of the women's dental auxiliaries, for it seems assured that next month the NADA will become known as the Women's Auxiliary to the American Dental Association. It will be officially accredited by the Association and will have a whole new set of initials –WAADA.

The auxiliary movement in dentistry has been growing steadily in numbers and in usefulness through the years. One has only to attend an auxiliary meeting to learn of the great accomplishments of the women in the dental health education field, working through the dental societies to which their husbands belong.

A great deal of credit for this is due, in Mrs. FitzGerald's opinion, to the work of Mrs. Cecil W. Neff of San Diego, California. Mrs. Neff has worked for many years to have the wives of dentists consolidated throughout the United States so that they can more constructively assist in the dental health education program.

Through *Newsy*, the information publication which she edited for the San Diego Women's Auxiliary, Mrs. Neff faithfully sent out messages to auxiliaries in all parts of the United States, until gradually there developed a widespread interest in a national auxiliary.

Mrs. FitzGerald became interested in this way when she was President of the Iowa State Dental Auxiliary, and she joined with Mrs. Neff in helping to promote the national organization when the American Dental Association met in San Francisco. At that time, she was appointed Vice-Chairman and Mrs. Neff was named Chairman. Later, Mrs. Neff was named President, and Mrs. FitzGerald became President-Elect.

She has always been interested in dental health education. For that matter, she is interested in everything worth-while and, during the years, has managed to be active in P.T.A., Girl Scouts, Y.W.C.A., and Red Cross, having been chairman of Red Cross volunteers in Mason City. At present she is volunteer field consultant for the Midwestern Area of the Red Cross.

Doctor FitzGerald has been equally active, both in dentistry and in community service. For many years he was on the Iowa Board of Dental Examiners, and was a trustee of the Iowa Dental Society. During World War II, he was a captain in the Navy dental service, going from the Mare Island Navy Yard to the South Pacific as base dental officer for the 7th Fleet in New Guinea and later in the Philippines. His job was the building and equipping of dental installations.

He is now commanding officer of a Navy Reserve dental unit in Iowa, which meets each week through the year. Bonnie FitzGerald has been appointed "yeoman" because she serves refreshments after each meeting.

During the war, she was with her husband while he was at Mare Island, she worked as librarian in the Navy Library there while he was overseas. After the war, the FitzGeralds returned to Mason City, where he had his practice, and Bonnie worked on the Public Health Nursing Board and was a member of the Committee of 100 of the Iowa Public Health Association.

They have two children, a daughter who is an architectural engineer in California, and a son who is a dental student in Marquette University. Doctor FitzGerald is a brother of Doctor Leslie FitzGerald, of Dubuque, Iowa, who was ADA President in 1954.

A salute to the FitzGeralds, a fine dental team.

1993 Lucile Avenue,
Los Angeles 39, Calif.

SOON!

Injections Without Needles

By KENNETH LOWE

Your instrument supply dealer doesn't have it yet, but a device that will administer a subcutaneous or intramuscular injection without a needle is on its way to your office.

Soon you won't have to watch your patient go rigid in the chair, his dilated pupils reflecting the gleam of the sharp metal on the end of your poised syringe. Next to politics, taxes, and a dental appointment, there are few matters that give the human race so much emotional agony (although a minimal amount of physical pain) as does this unavoidable method of administering certain vital medications. The almost psychological trauma at "getting a shot" must somehow be a manifestation of our age-old instinct of self-preservation. Knowing that our anatomy is so arranged that the vital organs are protected by layers of skin and muscle, perhaps we subconsciously feel that they are threatened by that inch or so of needle. Or so some of our psychiatric colleagues have suggested.

After more than two years of clinical trial, physicians at the Western Reserve University School of Medicine have described the advantages of an instrument that "blows" medication into the tissues by a jet of air. Their report was made to the Congress of the United States since the trial use of this instrument was designed to determine its effectiveness as a public health aid in mass innoculation.

How It Works

This boon to mankind—the Press-O-Jet—is a palm-sized, round container with a plastic or rubber seal at one end, and a tiny orifice (1/30 the size of a 22-gauge needle) at the other. On one side, there is a lever that works toward and away from the metal body that holds the medication, building up pressure inside it just as air is compressed in a pump-action air rifle. When the mechanism is triggered, a measured dose shoots from the outlet at 700 miles per hour in such misty droplets that it penetrates through human tissue with little or no pain. Like an automatic pistol, it fires a number of shots without refilling.

The Ohio physicians told Congress that they had used it on 6,538 Post Office employees and their families during 1957 and 1958, administering Salk vaccine, penicillin, streptomycin, insulin and (in children) the diphtheria-tetanus-typhoid group. They reported that two of the team were able to inoculate 200 patients an hour—a tremendous saving in time over the needle-syringe method—and that even untrained assistants could do as well. Such speed could be a life-saving factor in the event of nuclear war or a large-scale natural disaster when the disruption of public utilities and sanitation services might allow disease to become epidemic.

With the Press-O-Jet in your office, overhead will be reduced by not having to sharpen or replace needles (or syringes), nor even sterilizing between cases. There will be peace of mind in its freedom from contamination, as well as from the chance of breaking off a needle in the tissues. Time-consuming aspiration, to avoid injection into a blood vessel, will also be eliminated. Another freedom may be that from lawsuits that can arise from one of the above misfortunes.

Minor Disadvantages

The disadvantages found by the research group were minor: a few patients developed a bruise at the site of impact, but this disappeared promptly; and a few had a minimal amount of bleeding, but no more than with a needle. It was determined that circulating blood levels of medication administered by the "blowgun" were comparable to amounts found with a needle injection technique. In more than 7,000 injections, the patients expressed an enthusiastic preference for the Press-O-Jet.

Now don't put in a call to your dental supply dealer—he doesn't have the Press-O-Jet yet. But you (and your patients) can look forward to another development of the jet age reaching your office soon.

P. O. Box 558
Hempstead, N. Y.

CHESTER COUNTY DENTAL LABORATORY
24 EAST MARKET STREET — WEST CHESTER, PENNSYLVANIA
Phone: OWen 6-3190

TICONIUM

correct vertical *and* **centric**

From Ticonium Research comes the amazing Ticonium Vertiscriber, the full denture technique which eliminates guesswork in bite registration.

Vertical and Centric are established correctly and simply.

This time-tested technique could be the solution to your bite problems.

TICONIUM VERTISCRIBER

Full Denture Technique

TICONIUM
DIVISION OF CMP INDUSTRIES, INC.
ALBANY 1, NEW YORK

TICONIUM—413 No. Pearl St., Albany 1, N.Y.
Send me FREE of charge more information on the Vertiscriber Technique.
DOCTOR_____
STREET_____
CITY_____
ZONE_____ STATE_____

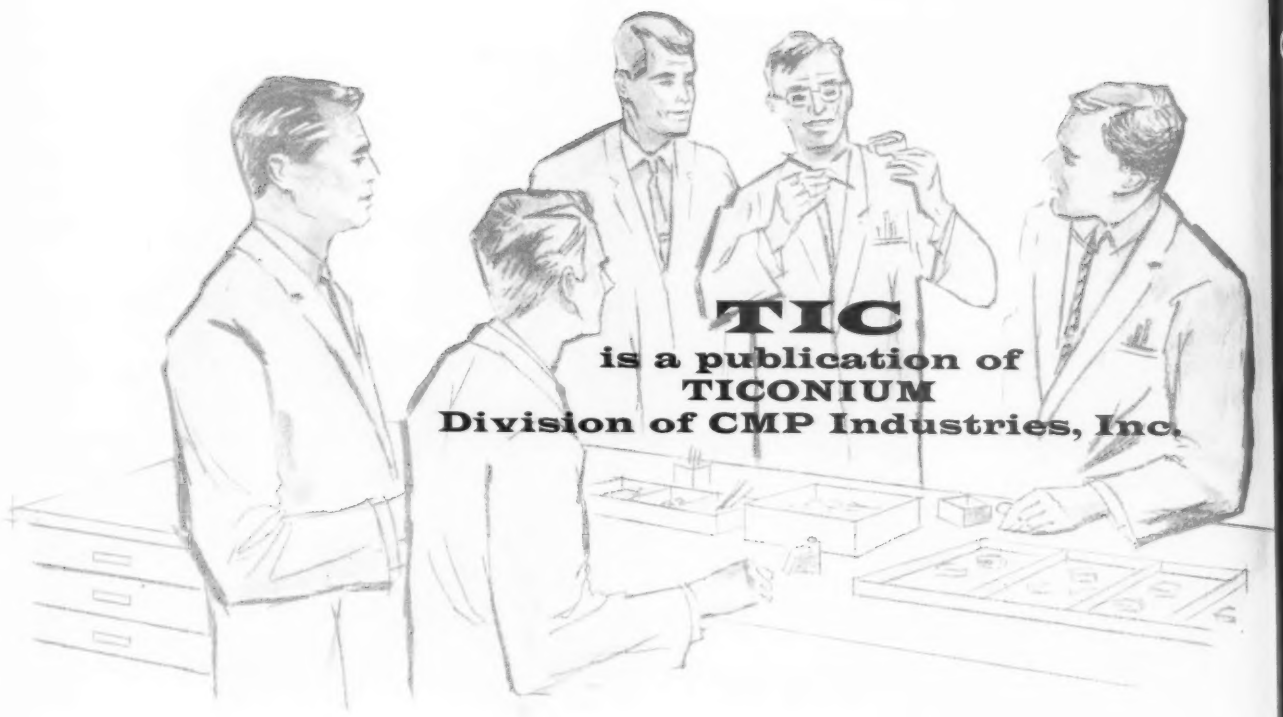
YOUR Ticonium LABORATORY

TIC

413 NORTH PEARL STREET
ALBANY 1, NEW YORK
Form 3547 Requested

BULK RATE
U. S. Postage
PAID
ALBANY, N. Y.
Permit No. 1648

T-184
KENNETH A EASLICK DDS
DENTAL SCH UNIV OF MICH
ANN ARBOR MICH



TIC
is a publication of
TICONIUM
Division of CMP Industries, Inc.

TIC is sent to you with the compliments of your TICONIUM LABORATORY